CLAIMS

1   1. A printer for printing time-based media, the printer comprising:

2   a communication interface for receiving time-based media data from a media

3   source;

4   a processor for performing a multimedia function on the time-based media

5   data to obtain an electronic image and associated print data;

6   a user interface, communicatively coupled to the processor, including:

7   a display, for providing data to a user;

8   an input device, for receiving data from the user;

9   a first output device for receiving the associated print data from the processor

10   and producing output on a printer; and

11   a second output device coupled to the processor for receiving the electronic

12   image and producing an electronic output from the image.

1   2. The printer of claim 1 wherein the multimedia function includes selecting

2   a range of audio data in response to received input from the user.

1   3. The printer of claim 1 wherein the multimedia function includes applying

2   audio event detection to the time-based media data.

1   4. The printer of claim 3 wherein the multimedia function further includes

2   determining a confidence level associated with the audio event detection.

1   5. The printer of claim 1 wherein the multimedia function includes applying

2   a speaker segmentation function to the time-based media data.

1   6. The printer of claim 1 or 5 wherein the multimedia function includes

2 applying a speaker recognition function to the time-based media data.

1   7. The printer of claim 1 wherein the multimedia function includes applying

2 a sound source localization function to the time-based media data.

1   8. The printer of claim 7 wherein the multimedia function further includes

2 applying audio event detection to the time-based media data.

1   9. The printer of claim 1 wherein the multimedia function includes applying

2 a speech recognition function to the time-based media data.

1   10. The printer of claim 9 wherein the multimedia function includes

2 applying a profile analysis function to the time-based media data.

1   11. The printer of claim 9 wherein the multimedia function includes

2 applying an audio event detection function to the time-based media data.

1   12. The printer of claim 11 wherein the multimedia function further includes

2 applying a speaker recognition function to the time-based media data.

1   13. The printer of claim 11 wherein the multimedia function further includes

2 applying a speaker segmentation function to the time-based media data.

1   14. The printer of claim 11 wherein the multimedia function further includes

2 applying a sound localization function to the time-based media data.

1   15. The printer of claim 1 wherein the multimedia function includes selecting

2   a range of video data in response to received input from the user.

1   16. The printer of claim 1 wherein the multimedia function includes

2   applying a video event detection function to the time-based media data.

1   17. The printer of claim 1 wherein the multimedia function includes

2   applying a color histogram analysis function to the time-based media data.

1   18. The printer of claim 1 wherein the multimedia function includes

2   applying a face detection function to the time-based media data.

1   19. The printer of claim 18 wherein the multimedia function includes

2   applying a clustering function to the time-based media data to merge multiple

3   instances of a face into a representative face image.

1   20. The printer of claim 1 wherein the multimedia function includes

2   applying a face recognition function to the time-based media data.

1   21. The printer of claim 1 wherein the multimedia function includes

2   applying an optical character recognition function to the time-based media data.

1   22. The printer of claim 21 wherein the multimedia function further includes

2   applying a clustering function to the time-based media data to merge similar results

3   of the optical character recognition.

1   23. The printer of claim 1 wherein the multimedia function includes

2   applying a motion analysis function to the time-based media data.

1   24. The printer of claim 1 or claim 23 wherein the multimedia function

2   includes applying a distance estimation function to the time-based media data.

1   25. The printer of claim 1 wherein the multimedia function includes

2   applying foreground/background segmentation function to the time-based media

3   data.

1   26. The printer of claim 1 wherein the multimedia function includes

2   applying a scene segmentation function to the time-based media data.

1   27. The printer of claim 26 wherein the multimedia function further includes

2   applying a face recognition recognition function to the time-based media data.

1   28. The printer of claim 26 wherein the multimedia function further includes

2   applying a face detection function to the time-based media data.

1   29. The printer of claim 26 wherein the multimedia function includes

2   applying an optical character recognition function to the time-based media data.

1   30. The printer of claim 29 wherein the multimedia function further includes

2   applying a face recognition function to the time-based media data.

1   31. The printer of claim 29 wherein the multimedia function includes

2   applying a face detection function to the time-based media data.

1   32. The printer of claim 1 wherein the multimedia function includes

2   applying an automobile recognition function to the time-based media data.

1   33. The printer of claim 32 wherein the multimedia function further includes

2   applying a motion analysis function to the time-based media data.

1   34. The printer of claim 1 wherein the multimedia function includes

2   applying a license plate recognition function to the time-based media data.

1   35. The system of claim 1 wherein the multimedia function includes

2   applying a visual inspection function to the time-based media data.

1   36. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control a compact disc (CD) device.

1   37. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control a digital video disc (DVD) device.

1   38. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control an audio tape device.

1   39. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control a video tape device.

1   40. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control a multimedia server.

1   41. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control encryption hardware.

1   42. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control audio sound localization hardware.

1   43. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control motion detection hardware.

1   44. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control a MIDI player.

1   45. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control a cellular telephone.

1   46. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control a two-way radio.

1   47. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control a world wide web display.

1   48. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control a climate sensor.

1   49. The printer of claim 1 wherein the user interface is configured to allow a

2   user to control a radio receiver.

1   50. The printer of claim 1 wherein the processor is further configured to

2   display results of the multimedia function on the display of the user interface.

1   51. The printer of claim 1 wherein the second output device is a DVD drive.

1   52. The printer of claim 1 wherein the second output device is a CD drive.

1   53. The printer of claim 1 wherein the second output device is an audio tape

2   drive.

1   54. The printer of claim 1 wherein the second output device is a video

2   cassette device.

1   55. The printer of claim 1 wherein the second output device is a removable

2   media device.

1   56. The printer of claim 1 wherein the second output device is an embedded

2   audio·recorder.

1   57. The printer of claim 1 wherein the second output device is an embedded

2   video recorder.

1   58. The printer of claim 1 wherein the second output device is a non-volatile

2   storage device.

1   59. The printer of claim 1 wherein the second output device is an embedded

2   multimedia server.

1   60. The printer of claim 1 wherein the second output device is audio

2   encryption hardware.

1   61. The printer of claim 1 wherein the second output device is video

2   encryption hardware.

1   62. The printer of claim 1 wherein the second output device is audio sound

2   localization hardware.

1   63. The printer of claim 1 wherein the second output device is a cellular

2   telephone.

1   64. The printer of claim 1 wherein the second output device is a two-way

2   radio.

1   65. The printer of claim 1 wherein the second output device is a world-wide

2   web display.

1   66. The printer of claim 1 wherein the second output device is a radio

2   receiver for receiving AM signals.

1   67. The printer of claim 1 wherein the second output device is a radio

2   receiver for receiving FM signals.

1   68. The printer of claim 1 wherein the second output device is a radio

2   receiver for receiving short wave signals.

1   69. The printer of claim 1 wherein the second output device is a satellite

2   radio receiver.

1   70. The printer of claim 1 wherein the second output device is a weather alert

2   receiver.

1   71. The printer of claim 1 wherein the second output device is an emergency

2   alert monitor for receiving emergency broadcast system alerts.

1   72. The printer of claim 1 wherein the second output device is hardware for

2   performing VGA screen captures.

1   73. The printer of claim 1 wherein the second output device is hardware for

2   performing audio capture.

1   74. The printer of claim 1 wherein the second output device is hardware for

2   capturing data from an electronic pen.

1   75. The printer of claim 1 wherein the second output device is a disposable

2   media writer.

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2   76. The printer of claim 1 wherein the second output device is a flash

3   memory device.

1   77. The printer of claim 1 wherein the second output device is a wireless

2   device.

1   78. A method for printing time-based media, the method comprising:

2   receiving time-based media data from a media source;

3   receiving user input, the user input specifying a multimedia function to

4   perform on the time-based media;

5   performing the specified multimedia function on the time-based media data

6   to obtain an electronic image and associated print data;

7   producing output on a printer from the associated print data from the

8   processor and; and

9   producing an electronic output from the electronic image.

1   79. The method of claim 78 wherein the multimedia function includes

2 selecting a range of audio data in response to received input from the user.

1   80. The method of claim 1 wherein the multimedia function includes

2 applying audio event detection to the time-based media data.

1   81. The method of claim 80 wherein the multimedia function further

2 includes determining a confidence level associated with the audio event detection.

1   82. The method of claim 78 wherein the multimedia function includes

2 applying a speaker segmentation function to the time-based media data.

1   83. The method of claim 78 or 82 wherein the multimedia function includes

2 applying a speaker recognition function to the time-based media data.

1   84. The method of claim 78 wherein the multimedia function includes

2 applying a sound source localization function to the time-based media data.

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1   85. The method of claim 84 wherein the multimedia function further

2   includes applying audio event detection to the time-based media data.

1   86. The method of claim 78 wherein the multimedia function includes

2   applying a speech recognition function to the time-based media data.

1   87. The method of claim 86 wherein the multimedia function includes

2   applying a profile analysis function to the time-based media data.

1   88. The method of claim 86 wherein the multimedia function includes

2   applying an audio event detection function to the time-based media data.

1   89. The method of claim 88 wherein the multimedia function further

2   includes applying a speaker recognition function to the time-based media data.

1   90. The method of claim 88 wherein the multimedia function further

2   includes applying a speaker segmentation function to the time-based media data.

1   91. The method of claim 88 wherein the multimedia function further

2   includes applying a sound localization function to the time-based media data.

1   92. The method of claim 78 wherein the multimedia function includes

2   selecting a range of video data in response to received input from the user.

1   93. The method of claim 78 wherein the multimedia function includes

2   applying a video event detection function to the time-based media data.

1   94. The method of claim 78 wherein the multimedia function includes

2   applying a color histogram analysis function to the time-based media data.

1   95. The method of claim 78 wherein the multimedia function includes

2   applying a face detection function to the time-based media data.

1   96. The method of claim 95 wherein the multimedia function includes

2   applying a clustering function to the time-based media data to merge multiple

3   instances of a face into a representative face image.

1   97. The method of claim 78 wherein the multimedia function includes

2   applying a face recognition function to the time-based media data.

1   98. The method of claim 78 wherein the multimedia function includes

2   applying an optical character recognition function to the time-based media data.

1   99. The method of claim 98 wherein the multimedia function further

2   includes applying a clustering function to the time-based media data to merge

3   similar results of the optical character recognition.

1   100. The method of claim 78 wherein the multimedia function includes

2   applying a motion analysis function to the time-based media data.

1   101. The method of claim 78 or claim 100 wherein the multimedia function

2   includes applying a distance estimation function to the time-based media data.

1   102. The method of claim 78 wherein the multimedia function includes

2   applying foreground/background segmentation function to the time-based media

3   data.

1   103. The method of claim 78 wherein the multimedia function includes

2   applying a scene segmentation function to the time-based media data.

1   104. The method of claim 103 wherein the multimedia function further

2   includes applying a face recognition recognition function to the time-based media

3   data.

1   105. The method of claim 103 wherein the multimedia function further

2   includes applying a face detection function to the time-based media data.

1   106. The method of claim 103 wherein the multimedia function includes

2   applying an optical character recognition function to the time-based media data.

1   107. The method of claim 106 wherein the multimedia function further

2   includes applying a face recognition function to the time-based media data.

1   108. The method of claim 106 wherein the multimedia function includes

2   applying a face detection function to the time-based media data.

1   109. The method of claim 78 wherein the multimedia function includes

2   applying an automobile recognition function to the time-based media data.

1   110. The method of claim 109 wherein the multimedia function further

2   includes applying a motion analysis function to the time-based media data.

1   111. The method of claim 78 wherein the multimedia function includes

2   applying a license plate recognition function to the time-based media data.

1   112. The method of claim 78 wherein the multimedia function includes

2   applying a visual inspection function to the time-based media data.